NETWORKWORLD

THE   CONNECTED   ENTERPRISE   ≡   M A Y   2 4 ,   2 0 1 0

Juniper in a race to 'out-virtualize' its foes

BY JIM DUFFY

JUNIPER NETWORKS' announcement last week of switches and routers designed to flatten and simplify legacy networks is the latest sign that this company has no intention of backing off in the face of ever stiffer data center competition from Cisco, HP and others.

Juniper's rollout takes aim at Cisco's Nexus switches and other data center network wares, while setting the stage for Juniper's Project Stratus, a converged data center fabric that is still another eight to 12 months away from delivery.

Juniper is trying to guarantee itself a seat at the table by optimizing its product line around increasing use of virtualization technologies within the most compute- and networking-intensive sites.

"The vendor that solves that problem first has a huge upside," says Zeus Kerravala, a Yankee Group analyst.

The challenge for Juniper is that Cisco's been targeting virtualization from the networking side for several years, while server titans such as HP and IBM — a Juniper partner in Stratus — have been tackling it from the compute side even longer. Meanwhile, Brocade points out that it has been building data center fabrics with partners for years and that Juniper remains vague about how it will support legacy storage networks.
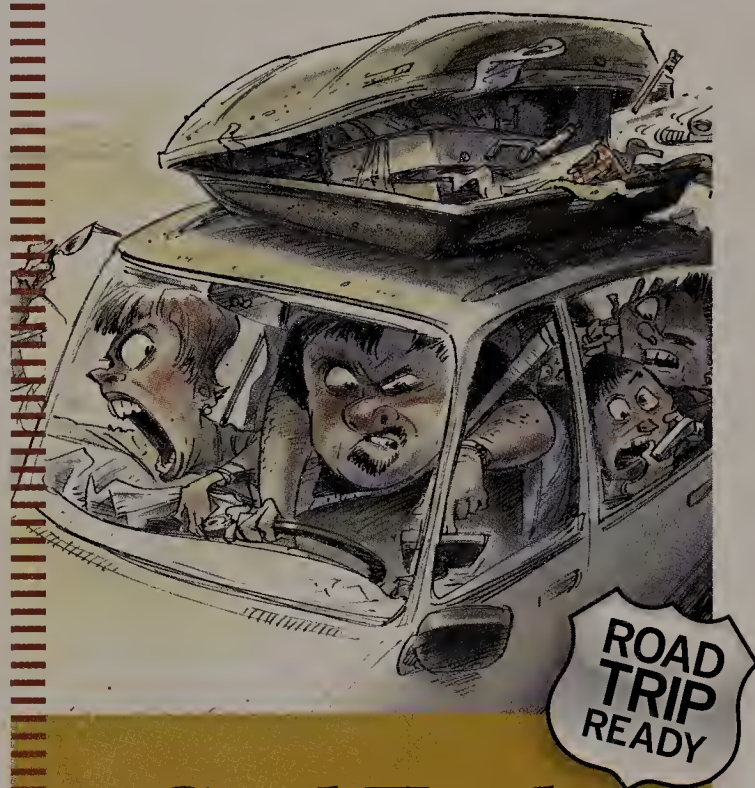
"The legacy approach can no longer scale to support virtualization," Juniper CEO Kevin Johnson said. "Fifty percent of the ports are talking to other network
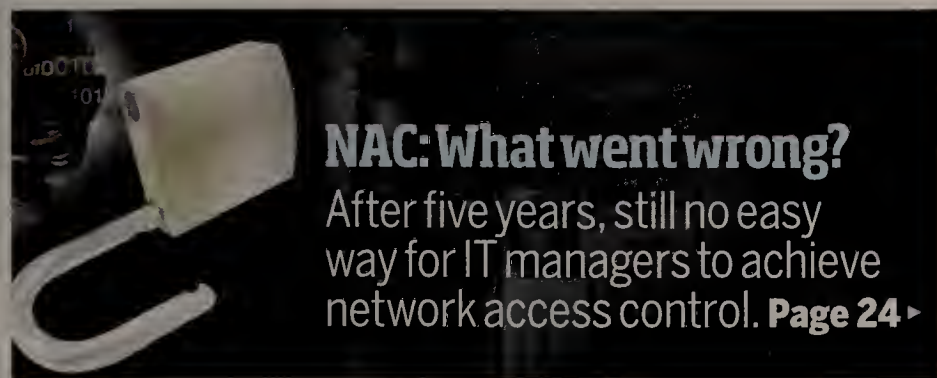
NAC: What went wrong?

After five years, still no easy way for IT managers to achieve network access control. **Page 24** ►

ALSO INSIDE

You've waited long enough.

The application architecture. The servers. Even the storage. Just about everything in the network has evolved. Except unfortunately, the network itself. Frustratingly slow. Unable to scale. Costly to manage and too complicated to overhaul. The network architecture is crying out for innovation and desperate for a new approach.

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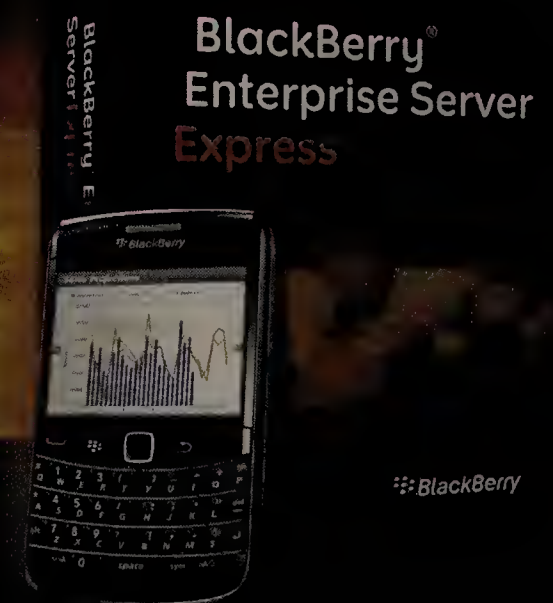
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FROM THE EDITOR | JOHN DIX

Do netbooks make good PC companions?

While the Apple iPad and other emerging tablets may ultimately shift the playing field, netbooks from the big corporate suppliers offer an interesting mobile alternative to big, bulky laptops.

Don't confuse these solidly built machines loaded with helpful tools for the mobile professional with the cheap, plastic consumer netbooks you find at Best Buy and other outlets.

The recently announced 10- by 7- by 1-inch HP Mini 5102, for example, has an all-metal case, a 10-inch screen, a great 95%-full keyboard and feels quite substantial, yet weighs in at only 2.64 pounds. I borrowed one from HP for a month to see what it was like to live with what HP calls a "companion PC."
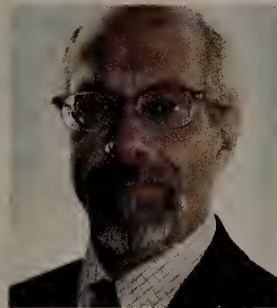
In a word: great. These aren't toys (this one is powered by an Intel Atom N450 1.66GHz processor with 1GB of RAM and a 160GB drive). While they don't boast the horsepower of a full-sized laptop, they are more than adequate for your average knowledge worker pounding on documents and spreadsheets and accessing e-mail and the Web (for a full review of the machine see tinyurl.com/26m2n98).

But if you're going to go this route look for machines with added value. The 5120, for example, comes with HP QuickSync, which synchronizes the contents on your netbook with your desktop over a wired or wireless link. To sync you start the password-protected programs on both machines and let them figure out what has been updated. This is a huge advantage if you are going to live with two devices.

Two other interesting tools on the the Mini 5102 are accessible from dedicated buttons above the keyboard. QuickWeb launches an HP browser without starting up the operating system. I was surfing in 16 seconds, compared to about 40 seconds for a full Windows 7 boot. Similarly, QuickLook lets you access Outlook calendar items, contact info and stored e-mail (up to 1,000 cached messages) without booting the computer — great if you're on the run.

While the price seems right at $399 and road warriors will welcome the light weight and small form factor (you can actually use one of these things on an airplane tray table), what it comes down to is this: can you really afford to add another layer of hardware/OS/apps for mobile workers?

That's a heavy price to pay. The same is true, of course, for the new tablets. If it isn't a one-for-one swap, you're just adding to device count and complexity, which aren't our friends. That said, if employees are going to start buying these things on their own anyway, at least you can point them in a direction that makes sense. Machines like the Mini 5102 make welcome travel companions.

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peersay

Internet privacy laws lacking in the U.S.

➡ ONE ISSUE I have with all this is I constantly see articles coming up about browsers tracking us. That has been going on for long time and it's no surprise the data that they collect can be very valuable and useful for spamming, etc. (Re: 8 in 10 browsers leave identifiable 'fingerprints,' EFF warns; tinyurl.com/3ak9t2v)

The biggest problem with the Internet in the U.S. and Canada is that the privacy laws in the U.S. especially allow companies to get data from third parties and sell the data with no rules to go by. I think in order to put a stop to this the privacy laws need to be overhauled in both Canada and U.S. as it is obvious that they do not apply to the Internet.

All in all as a computer forensic professional I am seeing less information being kept on machines in regards to chat logs and Web browser history so that's a good sign. On the other hand once we are out on the Internet there is no way to ensure your privacy especially when the servers are outside of North American borders.

If you take Google as an example — it has so many server scripts that can track a lot of things about a user using the search engine.

If people want to be anonymous on the Web they need to use tools such as tor and JanusVM or just use a Linux live CD with no hard drive in the system then it doesn't matter if they track your habits because they have nothing on you as it is very easy to discard or shred a Linux live CD leaving no evidence behind to be traced back especially if the IP address is anonymous.

Computer Forensics Professional

Femtocells: Let carriers foot the bill

➡ FEMTOCELLS SAVE THE wireless carriers a lot of money, as the traffic is offloaded from their networks onto their customers' Internet connections. (Re: Will femtocells ever get their moment?; tinyurl.com/3yvccsh) Users shouldn't be paying for this; if anything the carriers should be paying users. The future of wireless service is likely to be monthly contracts rather than minutes anyway (especially with smartphones where one can bypass the use of cellular minutes by using VoIP), so the pitch of saving money by not using contract minutes won't work.

The model that will work will be for the carriers to give the femtocells to two classes of users: businesses and public spaces (convention centers, transportation hubs, etc.) with heavy use, and homes that have poor cell reception. No equipment fees, no monthly fees, no nothing — free so long as they are being put to good use. By increasing quality of service, the wireless carriers will retain customers, rather than having some of them consider going to a future of Wi-Fi only and dropping service altogether.

mdulcey

Broadband: Other countries get it right

➡ WE ONLY HAVE to observe the U.S. position in the league of broadband nations to see where current policies have led... and to compare with other developed countries to see that common carrier is the way forward. (Re: FCC's 'third way': Trying to be partially pregnant?; page 16)

In Europe, even wireless is common carrier and the benefits to consumers in costs and choices are blindingly obvious. Of course it's always possible that the Euro cell system will collapse along with the physical network suppliers but it doesn't look that way now.

Personally, I do not feel it was "fair" that my small independent ISP was ushered out of business by the FCC's ruling, lobbied by the incumbents, to reclassify telephone "wires" as an "information service" and kill off common carrier. If only people had been better informed as to what that meant and the consequences, which have now been realized in a non-competitive broadband industry.

Scunnerous

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Smarter systems for a Smarter Planet.

bits

Oh Molly, your ads are pulling GREAT

MICROSOFT SAYS IT has uncovered a new kind of fraud, filing two lawsuits against people it says are using a scam it calls click laundering. It's a bit like money laundering, in that the bad guys try to cover their tracks to make fraudulently obtained clicks on ads appear legit. In one of the suits, Microsoft accuses RedOrbit.com of using botnets and parked sites (dummy sites that typically only include long lists of links) to dramatically drive up the number of clicks on ads on the RedOrbit site. But rather than simply use the botnets and sites to direct clicks to ads on RedOrbit.com as fraudsters commonly do, RedOrbit directed the traffic to its own servers where it scraped out the traffic-referring information and replaced it with code that made it look like the traffic came directly from legitimate interested buyers to the approved RedOrbit site. "[We have uncovered] what was at one point thought to be highly or almost impossible to do," said Richard Boscovich, an attorney in Microsoft's digital crimes unit.

tinyurl.com/2vgpkgq

So much for anonymity

THINK YOU'RE browsing anonymously? Think again. Even without cookies, popular browsers such as Internet Explorer and Firefox give Web sites enough information to get a unique picture of visitors about 94% of the time, according to the Electronic Frontier Foundation. Configuration information — data on the type of browser, operating system, plugins, and even fonts installed — can be compiled by Web sites to create a unique portrait of most visitors, says Peter Eckersley, who conducted the research. The EFF has set up a Web site that tests visitors for uniquely identifiable information. Most people are surprised to discover just how trackable they are, Eckersley said. "Even if you turn off cookies and you use a proxy to hide your IP address, you could still be tracked."
tinyurl.com/35x6dlo

Cisco says, make that a double

AFTER A quiet first quarter, the normally acquisitive Cisco is back at it with the announcement of its first two deals of the year. The company is plunking down $99 million in cash for CoreOptics, a designer of digital signal processing technology for optical networks. It's also after the company's expertise in digital ASIC design and advanced modulation formats. And Cisco is acquiring Moto Development Group (amount unknown), a product design consulting firm that helped develop what is now Cisco's Flip video camera. Although Cisco doesn't swallow as many companies as it once did — in 2000 it bought 23, and 12 apiece in '04 and '05 — over the last three years it gobbled down 23 firms.
tinyurl.com/34x8ezp

Walk it off... er, on

INSTEAD OF draining the battery on your iPhone while you exercise, someday you might be able to charge it at the same time you're burning calories. Researchers at Georgia Institute of Technology have found a way to harvest energy using tiny nanowires made of zinc oxide. Zinc oxide has piezoelectric potential, which provides the ability for nanowires to convert mechanical energy, generated by walking or running, into electric energy. The researchers haven't performed actual field tests yet, but they've formed a company called Piezodyne to commercialize the technology. *tinyurl.com/3ao65cc*

CA changes name, again

CA HAS changed its name to CA Technologies to reflect the depth of its offerings, a portfolio that is getting deeper and deeper. Earlier this year CA completed acquisitions of cloud software provider 3Tera, performance monitoring software Nimsoft and service-level management software company Oblicore. In 2009, the company acquired network performance monitoring software vendor NetQoS, the assets of automation vendor Cassatt, and data-loss prevention software provider Orchestria. The new moniker marks the second name change in five years. In January 2006 Computer Associates International dropped the pretense and went with what everyone called it anyway ... CA. *tinyurl.com/2vvjezl*

Gov't = highly secure practices, right?

SO WE like to think. But it turns out that users in the government are the same weak link as in every other company. In a survey of 200 federal IT and information security

verizon
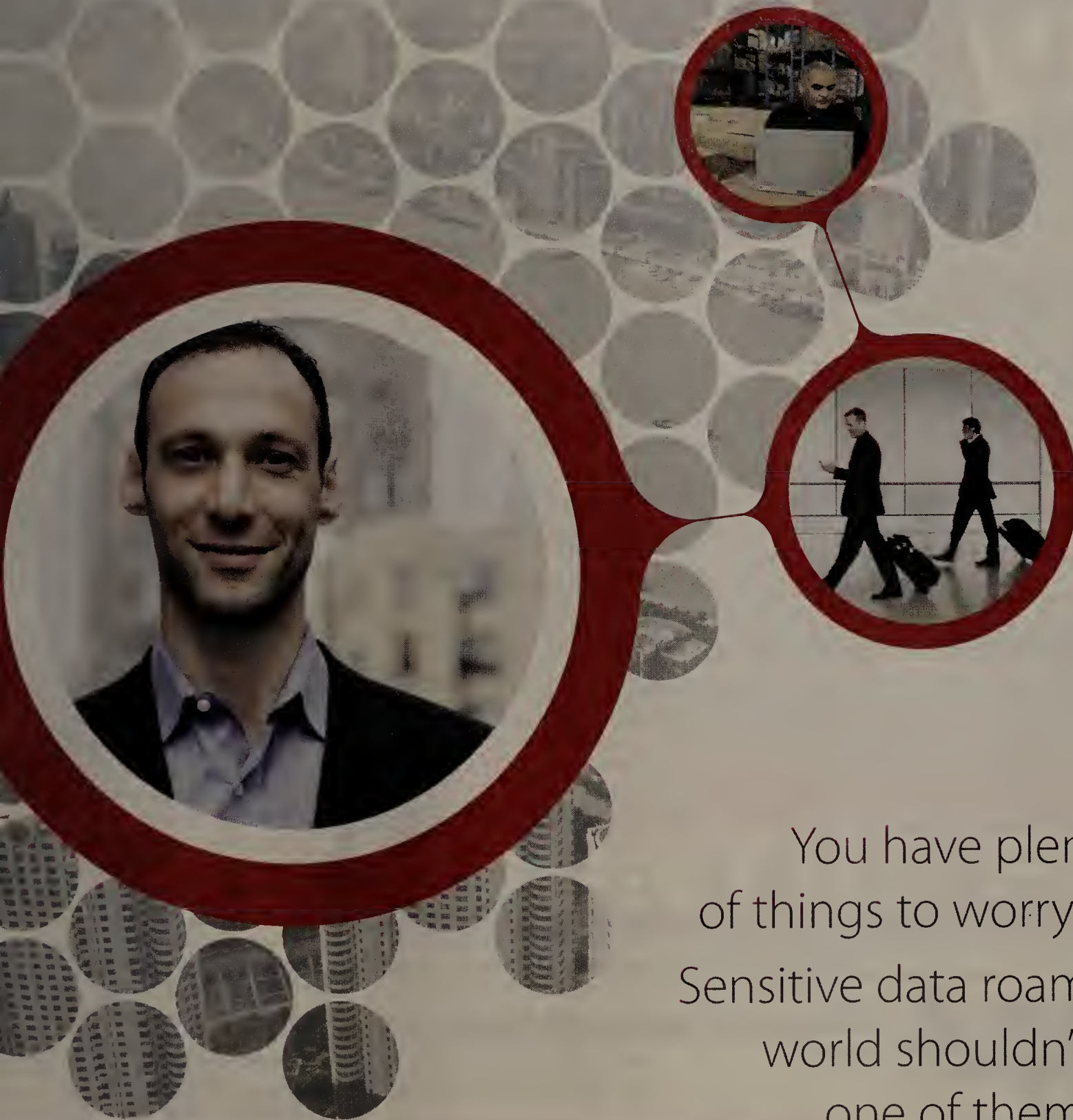
You have plenty
of things to worry about.
Sensitive data roaming the
world shouldn't be
one of them.

GOOD | BAD | UGLY

Rallying around UC

good

A NUMBER of unified communications vendors including Microsoft, Polycom and HP have formed the Unified Communications Interoperability Forum, a group to make sure all the pieces needed for collaboration will work together. UCIF also includes Juniper and Logitech among its founders and had at least 12 other members as of last week. Because it typically involves a variety of systems, often from different vendors, UC can be hard to pull off in the real world, Polycom co-founder and CTO Jeff Rodman said. Interoperability has been an ongoing problem in UC, and enterprises want all the major vendors to implement their products so they work together, according to Wainhouse Research analyst Andrew Davis. But not all is perfect with UCIF from the start: Cisco and Avaya, the two biggest players in UC, had been invited but had not joined the organization.

Judge gives ISP the boot

bad

A U.S. district court judge has ordered the permanent closure of an Internet service provider long accused of hosting and distributing spam, spyware, child pornography and other illegal content, at the request of the Federal Trade Commission. Judge Ronald Whyte of the U.S. District Court for the Northern District of California in San Jose has ordered that the computer servers and other assets owned by Pricewert, doing business as 3FN.net, be sold by a court-appointed receiver. Whyte also ordered the company to turn over $1.08 million in illegal profits to the FTC, according to court documents. Several security experts supported the FTC's case against 3FN, Whyte wrote in a disgorgement order. "These experts had analyzed data derived from Internet searches which establish that defendant, an internet service provider, was engaged in widespread illegal activity,"

Microsoft sues Salesforce.com

ugly

MICROSOFT, FREQUENTLY the target of patent infringement suits, last week targeted CRM rival Salesforce.com in a suit of its own. Microsoft claimed in U.S. District Court in Seattle that the $1.3 billion company violated nine patents, including those having to do with how to navigate customer relationship management software. Microsoft is seeking an injunction and monetary compensation.

professionals by Meri-Talk, a government IT social-networking site, and Axway, an IT security vendor, 52% said employees used personal e-mail to transfer files within their agencies or to other agencies. About two-thirds said employees used physical media, including USB drives and DVDs, to transfer files, and 60% of employees use FTP. And while 80% of respondents said their agencies have adequate file transfer policies in place, only 58% said employees were aware of secure file transfer policies. *tinyurl.com/37r8dom*

Friends don't let friends sit on copy machines

OK, THAT'S really the least of your worries. But this is sobering. It turns out these machines have long memories. A recent report from CBS News said nearly every copy machine built since 2002 stores documents copied, scanned and e-mailed on internal hard drives. The report found sensitive health and law-enforcement investigation information on copy machines ready to be resold. Now lawmakers are getting involved. "I am concerned that these hard drives represent a treasure trove for thieves, leaving unwitting consumers vulnerable to identity theft as their Social Security numbers, birth certificates, medical records, bank records and other personal information are exposed," wrote U.S. Representative Ed Markey in a letter to the U.S. Federal Trade Commission. In response, FTC Chairman Jon Leibowitz last week said the agency is working with copy machine makers and sellers to provide "appropriate educational materials" to clients. *tinyurl.com/2wom6hy*

A tablet in every hand

YOU MAY not find it magical or revolutionary, but Apple's iPad is undeniably influential. It's a big reason for bullish estimates in the tablet market. Like from IDC, which is forecasting tablet shipments will reach 7 million this year and top 46 million in 2014. As more applications, content and services designed for tablets become available, tablets will become "necessities for many consumers," says Susan Kevorkian, a program director with IDC. Tablet shipments in 2010 will likely be dominated by Apple, but competitors aren't far behind. HP announced plans to use Palm's WebOS in tablets. Asus and Lenovo also plan to release tablets. Google, too, is rumored to be making one. *tinyurl.com/3y66h9u*

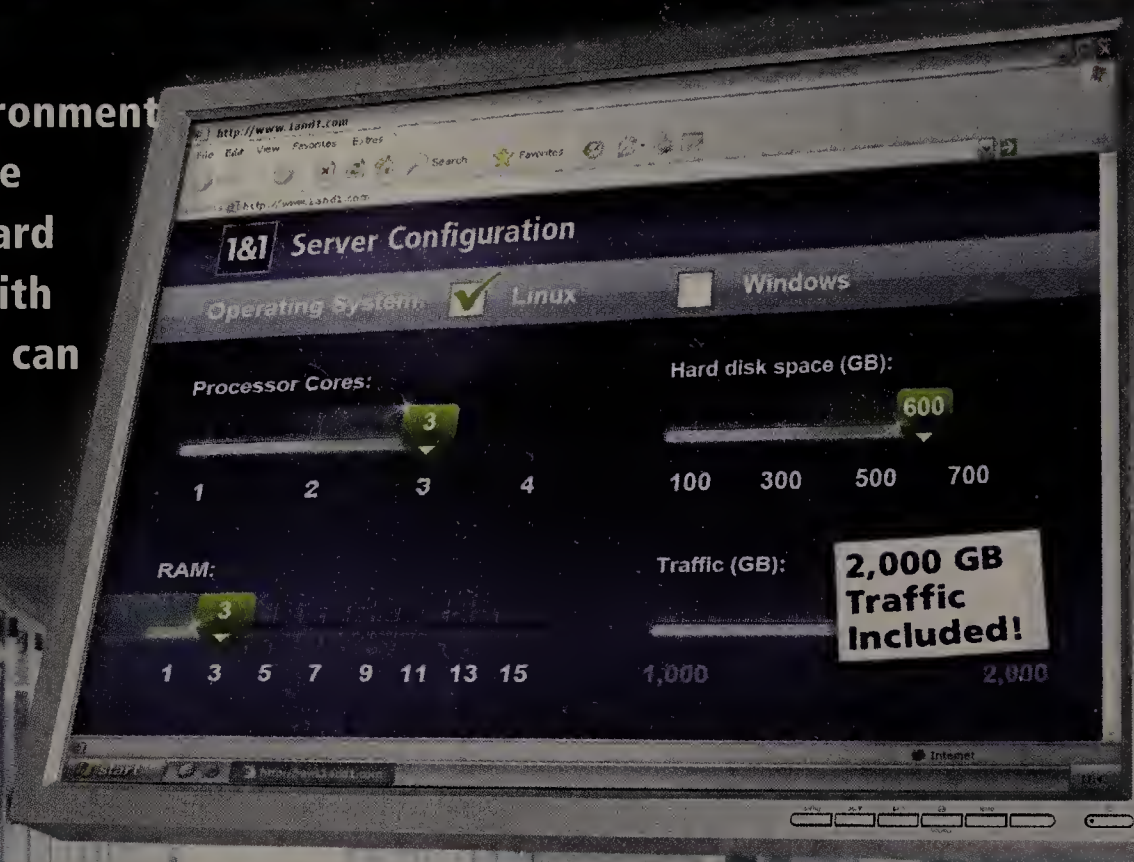**TRUE FACT**

10,000,000,000

The number of transistors per human by the end of 2010, each transistor costing one ten-millionth of a cent.

SOURCES: INTEL CORPORATION; CISCO IBSG, 2006-2009, IBM

TREND ANALYSIS

Symantec's VeriSign gambit draws mixed reviews

BY ELLEN MESSMER

SYMANTEC'S DECISION to pay $1.28 billion to buy most of the security services within VeriSign is drawing mixed reactions in the analyst community, but Symantec insists the VeriSign certificate and authentication services are key elements in what could be one of the biggest self-transformations in the security industry.

It even comes down to the Symantec logo, which will be changed to a new one that includes the telltale VeriSign check mark, according to Francis deSouza, senior vice president in Symantec's enterprise security group.

But it will be understandable if there's some initial confusion regarding this industry re-shuffling, since the company VeriSign will still go on selling domain names, while Symantec will also be using the name VeriSign to continue selling VeriSign's SSL certificates and authentication services. Symantec also gets ownership stake in VeriSign Japan.

The Symantec deal to acquire most of VeriSign's security businesses (VeriSign keeps the iDefense unit) comes just a few weeks after the announcement that Symantec is buying both PGP and GuardianEdge Technologies.

Analysts are offering mixed reactions to Symantec's VeriSign deal.

"We're not very positive on this," says John Pescatore, a Gartner senior analyst. "When Symantec bought PGP, Gartner said they needed to avoid the distraction of going after the commoditized SSL server certificate market. Here they are buying VeriSign, whose revenue on SSL certificates has been dropping because of the SSL market being driven by low prices. The SSL cert business isn't even strongly related to any Symantec business areas — it will bring some near-term revenue to make Wall Street happy but long-term dilute Symantec resources from its main markets."

But Jon Oltsik, principal analyst at Enterprise Strategy Group, was upbeat in his blog for *Network World*, writing that when you "add VeriSign to PGP to Symantec," you get several strengths, including, "Symantec can now create an infrastructure where any user or node can set up a trust relationship with any other," and "Symantec has the scale and reach to marry the security power of PKI [public-key infrastructure] with a global [software-as-a-service]," plus "VeriSign can now act as a [certificate authority] for PGP keys as well."

"Authentication? Digital signatures? Non-repudiation? Symantec now has the opportunity to take these geeky terms and apply their goodness to the masses," Oltsik enthused. "We've been talking about the 'year of PKI' for 15 years. Symantec now has the opportunity to make it happen."

The InfoPro's managing director of security research, Bill Trussell, was also generally positive about the deal.

"Between PGP and now VeriSign, Symantec has filled a void in their product portfolio

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RISK AND REWARD | BY ANDREAS ANTONPOULOS

Our growing security quagmire

INFORMATION SECURITY was always an esoteric field but with personal computing came personal security issues, culminating in the identity theft problem that concerns even the most techno-phobic of consumers. It's about to get much worse.

The latest interesting areas for security come from the proliferation of connected computing devices into new areas of our life: mobile devices (for example iPhone, Droid, iPad), building automation (smart grid) and automotive computing. Up to now, we've worried about computers messing with our money. Now we can add to that the worry of computers tracking our location, killing our power and crashing our cars. As a security professional I am simultaneously appalled and hopeful for my job security.

The iPad and iPhone devices have really got people excited about handheld computing. But few people stop to think about the security implications. No other device is as intimately connected to a user as a smartphone. I often forget my wallet and my keys, but I rarely go anywhere without my smartphone. That makes my phone a fantastic tool for location-based personal services, but also for ubiquitous and extremely intrusive surveillance.

The specs of the latest smartphones add up to a serious security problem: GPS, cellular data and location, magnetic compass, accelerometer, microphone and video camera. If you compromise a device that never leaves the side of the owner and contains those features, you have the most sophisticated surveillance system ever devised. It's far worse than compromising a PC or reading someone's e-mail. You could literally bug every conversation while knowing exactly where the user is and even if they are walking or lying down!

Last week, researchers at the University of Washington and the UC San Diego demonstrated the implications of compromising a car's built-in computer network. All modern cars have an embedded computer network that provides diagnostic information and some remote control capabilities. The researchers were able to control the engine, car doors, lights, speedometer and other functions.

Now, today this kind of compromise requires some initial physical access to connect to the OBD-II (On-Board Diagnostics II) port to sniff and inject data packets. But increasingly cars are connected to wireless networks, exposing those capabilities to remote control. One such system for remote control and access is OnStar, but it is easy to imagine a world where every car does telemetry and remote control. Are these systems secure from remote compromise? Just recently a disgruntled employee at a security company (not OnStar) remotely disabled hundreds of cars. Not very reassuring.

Finally, we are seeing the rapid deployment of smart-grid and smart-meter technology, with the explicitly stated goal of linking consumer devices in the home with utility company systems for energy management, visibility and consumer control. What about security? Well most security researchers think that such infrastructure would be more vulnerable to a broad attack than the existing grid.

Information security was once the domain of researchers and defense contractors. When we invited IT into every aspect of our lives, we made security a household concern. Not that you shouldn't welcome the technology — but you should be prepared to see more security controls and concerns in more areas of your life too. ■

Antonopoulos is a senior vice president and founding partner at Nemertes Research, an independent technology research firm. He can be reached at andreas@nemertes.com.

Major Wi-Fi changes ahead

Improved or new standards, new frequencies will make Wi-Fi nets-more pervasive

BY JOHN COX

ALMOST ANY mobile device you buy today either has a Wi-Fi radio chip in it, or can be fitted with one. But the still annoying and baffling part of Wi-Fi is that while it lets you move around, you still have to be in a spot that has Wi-Fi.

The feverish vision of Wi-Fi networks blanketing entire cities has pretty much shriveled, (though some observers think federal stimulus dollars may re-energize it) even as mobile carriers race to deploy WiMAX or, as even Clearwire now is hinting, WiMAX-like Long Term Evolution (LTE) networks as the foundation for pervasive wireless connectivity.

Yet LTE will remain a relatively expensive service. Wi-Fi is becoming a comparatively low-cost, high-bandwidth wireless technology that's being embedded in a growing number of both devices and locations, including vehicles and carrier hotspots, like proliferating lily pads of connectivity.

Many of the immediate changes for Wi-Fi are those that will strengthen wireless connectivity as an increasingly pervasive "utility."

This week, for example, the WiGig Alliance is announcing the next moves in bringing the Wi-Fi to a new frequency band: 60GHz. The band will make it possible to deliver up to 7Gbps over relatively short distances, say the size of a living room or den.

That's a huge increase compared with what is now becoming the Wi-Fi standard for access points and a growing number of client adapters: 802.11n. The 802.11n radios use two or three simultaneous data streams, and can merge two 20MHz channels together. The results are data rates that can start at over 100Mbps and reach 300Mbps, though useable throughput is much less. By comparison 802.11g and 802.11a have a maximum data rate of 54Mbps and throughput in the 20M to 24Mbps range in ideal conditions.

The WGA's plan is to support a rapid industry deployment of its specification into products that will support existing Wi-Fi standards, notably 802.11n, while adding the 60GHz frequency to support very high data transfers over short distances. Applications include wireless I/O, uncompressed video streaming, high-speed data networking and the like.

This week, WGA makes its 1.0 specification available to a much larger group of vendors. Vendors that agree to the royalty-free licensing terms can take the spec and begin developing products based on it. The WGA is also partnering with the Wi-Fi Alliance to create an interoperability testing and certification program, modeled on the one the WFA has developed in the past for proving compatibility among Wi-Fi equipment.

Later this month, WGA will submit to the IEEE standards group a unified proposal to use the WGA specification as the foundation for a new 802.11 standard supporting multi-gigabyte data rates in 60GHz. Last year, the IEEE created two new 802.11 groups, 11ad for the 60GHz band, and 11ac for the bands below 6GHz.

The WGA plans to fully support the IEEE's 60GHz work, but if that work bogs down, WGA plans to push ahead, according to Mark Grodzinsky, marketing work group chair for the WiGig Alliance. "We'll participate actively in the IEEE process," he says. "But we're not going to wait for another seven-year-long [standards] process [a reference to the 11n approval cycle]."

Chips implementing the WiGig spec would be able to support all three frequencies: so the same radio could use 60GHz for blazingly fast downloads or uploads of data or video, and then 2.4 or 5GHz for, say, Internet or private cloud connectivity.

Sometime in the next 12 to 18 months there will be other Wi-Fi changes also:
- Simple, direct connections between Wi-Fi client devices, bypassing an access point or wireless router.
- The Wi-Fi Alliance is crafting a specification called Wi-Fi Direct. Like Bluetooth, the spec will include protocols to let Wi-Fi devices discover each other and securely create a direct connection with each other. The spec will support 802.11n and enterprise-grade Wi-Fi Protected Access 2 (WPA2) security. The WFA will begin certification testing for "Direct" in Q3.
- The current 802.11 standard supports a peer-to-peer connection but it lacks the smarts that Wi-Fi Direct will add, and has performance and security trade-offs, says Edgar Figueroa, Alliance CEO.
- Improved VoIP support, with a new set of WFA-authored protocols to let Wi-Fi networks support many high-quality, concurrent voice calls.
- Wi-Fi mesh networks. Mesh connections, which let access points connect directly to each other and transmission hop from one to another, are currently offered based on non-standard, often proprietary protocols. An IEEE standard, 802.11s, which is due out by mid 2011, will make Wi-Fi mesh networks simpler to create and use. More widespread use of a standard mesh will increase the footprint of Wi-Fi networks, and by offering alternate routes, will improve reliability.
- Improvements in Wi-Fi signal quality and reliability as chipmakers and equipment vendors implement more of the features in 802.11n. Adding such arcane capabilities as low-density parity check coding, to improve error correction, and transmit beam forming, which uses feedback from a Wi-Fi client to focus an access point's RF transmission, will lead to more robust Wi-Fi networks.
- Smarter Wi-Fi clients, cooperating with access points or hotspots to improve performance and security. The 802.11v standard is aimed at providing more client data, and power management, to incorporate and control client radios in network management. ∎

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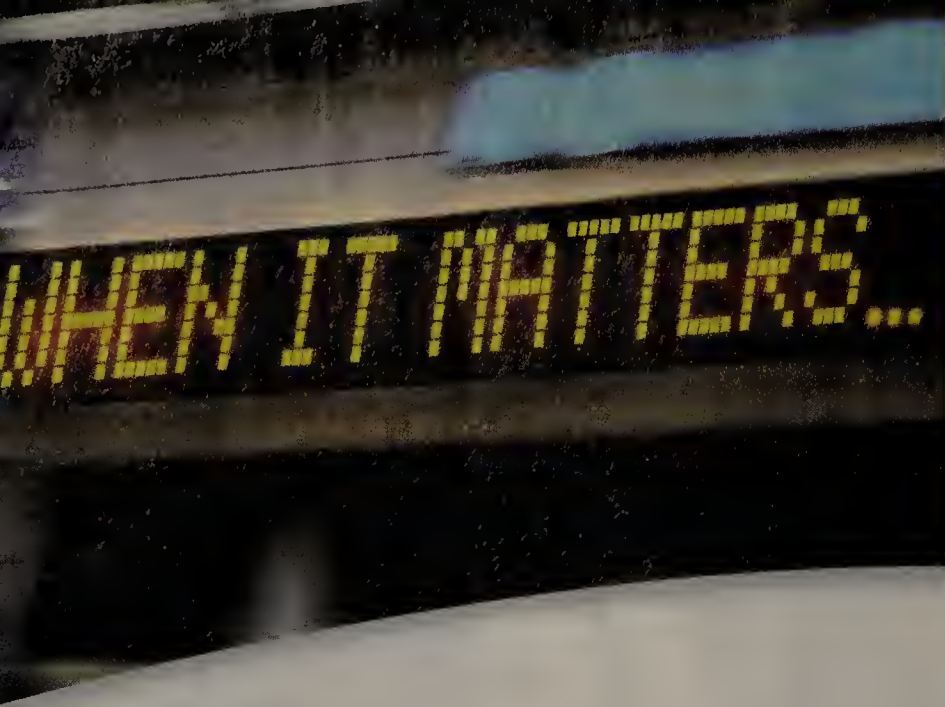
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NETINSIDER | BY SCOTT BRADNER

FCC's 'third way': Trying to be partially pregnant?

IN THE aftermath of an all-too-predictable appeals court decision overturning the FCC's Comcast ruling, a majority of FCC commissioners announced that they have discovered a new path to the land of net neutrality. Also predictably, most of the usual network neutrality opponents have gone into a full-bore tizzy — and, as is normally the case with full-bore tizzy, accuracy has been a casualty.

If one were to read the statements by the telephone carriers and some in Congress the FCC is actively trying to kill the Internet through over-regulation. It is hard to see the FCC's actual proposal in the picture they paint.

The FCC is not really proposing to regulate all that much, "just" the underlying transport of Internet traffic. At least that is what it says in the 30,000-foot descriptions of its plans released so far. The picture might be a bit more complex when the FCC releases actual details.

Since all of the big telephone/ISPs say they will not be unfair to their customers, and the FCC says it wants to ensure that carriers will not be unfair to their customers, one might have expected that the carriers should be willing to go along in order to establish a defined set of rules to govern the playpen. But, from what I can tell, the carriers do not trust the FCC (not trust government regulators? The very idea astonishes me.). Or maybe, they don't trust a future FCC. The carriers fear that the FCC could suddenly decide to expand regulation beyond transport to tariffs or peering or whatever. In other words they see the FCC as claiming to only be partially pregnant with new regulatory directions.

Of course, in doing so, they are doing exactly what they accuse the pro network neutrality people of doing. The carriers say that there is no problem to be solved because the carriers are always fair and that the pro network neutrality folks are just worrywarts. It is not unreasonable to say that both sets of worries may have some justification.

The carriers have not always been fair, one specific example — Comcast trashing BitTorrent — got us into the particular situation. A number of other, albeit smaller, examples of the problem have come up over the last few years. On the other hand, it is a bit hard to imagine a government regulator holding off forever if it thinks it has the authority to regulate — it would be counter to the nature of regulators.

To date, the FCC has held off most regulations of the Internet but, even in his letter describing the low-impact "third way" for Internet regulation, FCC Chairman Julius Genachowski listed six policy initiatives, most of which would involve some level of regulation of parts of the Internet community if they are to be successful. So maybe, the carriers are right to be somewhat mistrustful.

It is far from unusual for people trying to affect the policy-making process in Washington, D.C., to vastly over-state and over-simplify the dangers of a particular policy path, or of not following a policy path. It makes rational discourse a challenge, but we are talking about discourse in Washington, where calm and rationality are always as endangered as incumbents seem to be this year.

Disclaimer: Harvard is well represented in the ranks of the endangered incumbents as well as in the ranks of their challengers. They may have left Harvard rational, but I make no claims as to their current states or to any university view of the FCC plans or claims. ■

Bradner is Harvard University's technology security officer. He can be reached at sob@sobco.com.

Staffing firm boots PBXs, reaps VoIP savings

BY TIM GREENE

BOSTON — When staffing firm Aquent scrapped its decentralized phone system for an outsourced VoIP service it saved $20,000 per month, expanded the features of its video-conferencing system and enhanced functionality of its ERP system in one fell swoop.

The service from hosted VoIP provider M5 Networks also lets the company easily pass calls geographically, support disaster-recovery for the phone system and offer centralized voice mail that's integrated with e-mail, says Larry Bolick, Aquent's CIO.

The company had a mix of Nortel and Inter-Tel PBXs at its 40 North American sites serving 800 employees and 400 to 500 phones. The PBXs were nearing the end of their useful lives when the company decided to change its business structure so that its different lines of business were handled by dispersed teams located in different offices.

That meant the teams needed better ways of communicating with each other. For example, if a member of the marketing team wasn't available, incoming calls had to be directed to another member of the team regardless of where that member was located.

Similarly, the new system needed to be able to forward calls to other devices such as handhelds, and to send voice mail as e-mail attachments so practice members could always be reachable.

Bolick wanted to move to a phone service with all the gear except handsets based in the provider's network to minimize capital outlay and maintenance costs. He wanted to move to VoIP to reap benefits of integrating communications with other business processes. Call-detail records gathered company-wide that can be tapped by the enterprise resource management system, for instance, will result in better tracking of workflows, he says.

Level 3 offered a service he wanted to test, but after several delays it couldn't deliver. He considered a Cisco infrastructure to support iPhones under a BlackBerry enterprise model, but the initial investment — $300,000-plus, in addition to monthly fees of $50,000-plus — was too high.

Fonality had no enterprise product, but he liked that it could back up configurations over the Internet. Aquent tried it in four sites, but full deployment would have meant a Fonality box at each site, and Bolick says he was pretty sure he could find a provider to host across all sites without local gear.

He looked at service providers Packet 8
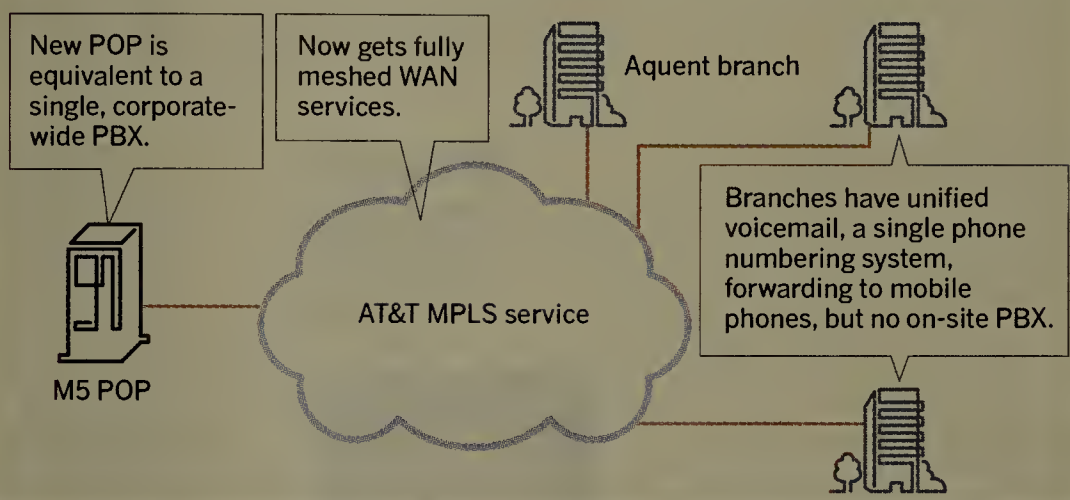
and Press 8 but both were meant for smaller businesses.

He looked at outsourcing with DSCI, M5 and Whaleback Systems. Whaleback was ruled out because it required purchasing hardware that would be arranged in regional hubs and spokes rather than a single, centrally managed network.

DSCI was based on open source and seemed like a good fit, but M5 had more "niceties" in its offering, Bolick says. Among these were a flat fee for unlimited users, trans-office hunt group support, a unified numbering plan, redirection of calls to mobile phones and browser-based call control.

The new system runs in part over an AT&T MPLS network that connects about 30 of the offices. The other 10 sites connect over the Internet via dedicated business-grade 768Kbps DSL or cable connections. This bandwidth ensures that voice won't be affected by competing bursts in data traffic, he says.

$20,000 savings per month

Aquent expects savings of $20,000 per month once the M5 transition is completed. Most of the inter-office communication before was via e-mail, and most phone calls were made within 50 miles of the offices. Some of the savings would come from using the less expensive data network to run voice and eliminating the local dedicated phone lines.

Before, eight or nine offices had a T-1 or two depending on size, and the rest had up to a dozen or so analog phone lines but lacked enough traffic to warrant T-1s.

The company already had a Tandberg videoconferencing infrastructure featuring either 32- or 42-inch high-definition screens that use 768Kbps over the MPLS network or 768Kbps dedicated local links to connect.

Bolick plans to expand use of videoconferencing by integrating it with the VoIP network. Linking the video to scanning will enable candidates' graphics portfolios to be viewed remotely during video interviews, he says.

Integrating the phone system with enterprise resource management software will enable Aquent's customized WebWall ERP to automatically gather stats about e-mails, phone calls and scheduled visits, and that knowledge will help business processes run more smoothly.

Before, phone use records were difficult to compile because they were kept office by office within each PBX. Now, Bolick says, it's easy to create reports across all offices.
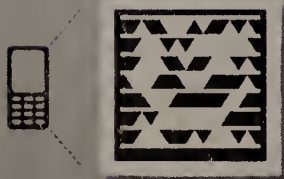
He wanted the new phone system to improve business continuity plans as well, forwarding calls from offices closed for snow storms, for example.

The switchover to the M5 service was done in two phases. The first involved five trial offices that were chosen for diversity of size, location and type of WAN connection.

Phase two, now nearing an end, calls for cutting over two or three offices per week. That meant starting six weeks ahead with prep work by EIS staff to upgrade cabling to Cat 5 or better as needed and to install Power over Ethernet switches. ∎

Aquent centralizes phones with M5

Aquent signed up for hosted VoIP from M5 and expects to save $20,000 per month on its phone service as well as gain features shown below:

New POP is equivalent to a single, corporate-wide PBX.

Now gets fully meshed WAN services.

Aquent branch

Branches have unified voicemail, a single phone numbering system, forwarding to mobile phones, but no on-site PBX.

AT&T MPLS service

M5 POP

Scalability is in.
Cost savings is in.
Efficiency is in.
Siemens is in.

Microsoft's cloud services are helping some of
the world's leading companies succeed. We're all in.

techdebate

Outsourcing IT management:
Is the time right?

Strategic outsourcing reduces costs

Terry Flood, president and CEO of Logicalis

THE NEED TO REDUCE COSTS while being more productive has been the primary motivator for IT departments to selectively outsource IT management functions, and most adopters find it does more than save money.

IT departments today are under tremendous pressure not just to provide uninterrupted technology services, but also to do everything from enhance customer service to help take market share from competitors. But few IT departments have the manpower or skills to provide the full range of services they are being asked to deliver, hence the interest in outsourcing specific tasks.

Outsourcing can help fill the gaps while also saving money. The savings are accomplished in many ways, including reduced downtime, access to experienced experts on an as-needed basis, streamlined procedures and the overall efficiencies that come from a proactive approach to infrastructure support. Some savings reflect harsh realities. A manufacturer in the Northeast, for example, more than offset the cost of a $38,000 monthly managed services fee by subtracting the salaries, benefits and training of seven full-time employees.

Beyond the savings, strategic outsourcing also delivers measurable IT productivity gains by enabling the group to redeploy skilled staff from mundane tasks, such as monitoring routers and resolving user problems, to strategic projects that use their core competencies to directly support business initiatives.

If you ask a CIO what his job is, he'll tell you it's to serve his customers better. That's the new starting point. Using technology to better serve customers is — or should be — the IT department's core competency, and this is where it should focus its attention, not on routine infrastructure management.

Your CFO will tell you that every asset, including every device and every employee, has to be allocated to a source of revenue. Outsourcing select services is one way IT departments can align themselves with growing the business.

Some of the reservations people have about outsourcing come from the early days of the boom in the managed services market when start-ups that were little more than two guys with beepers and a
▶ *See* **Flood**, *page 20*

Keep the strategic stuff in-house

Glenn O'Donnell, analyst at Forrester Research

THE ANSWER: NO AND YES. Forrester research is a proponent of what we call strategic rightsourcing, the strategy of carving out commodity functions that offer little business advantage and hiring third parties to perform those functions.

Performing such work yourself is economically unviable. This differs from traditional outsourcing because it is more targeted, standardized, and governed by policies and provisioning that are more flexible to change and more tightly integrated into the internal strategic functions.

IT management can fit the targeted definition for commodity candidates for outsourcing in this model — some functions are indeed commodities, such as basic infrastructure monitoring — however, many are more strategic and should remain in-house, such as automation orchestration and service portfolio management.

Furthermore, the interfaces that bind the many functions together (human or software) must be strong to enable management outsourcing. Unfortunately, most enterprises have interfaces that are fragile, if they exist at all. Overall process discipline and the integrated orchestration of IT services must improve regardless of any sourcing decisions.

Functional flaws will be amplified as the world becomes more dynamic and as IT embarks upon the strong mandate to become more entwined with business execution. Fixing these flaws internally is difficult. Handling such handoffs with third parties is more complex. If you can't do it internally, you will never do it well with third parties.

IT management can fit the targeted definition for commodity candidates for outsourcing in this model, but be careful in how it is approached and executed. Some management functions are indeed commodities (for example, basic infrastructure monitoring and sometimes the service desk), however, many are more strategic and should remain in-house (for example, overall automation orchestration and service portfolio management).

Weaknesses in negotiating terms and conditions as well as service-level agreements will kill any outsourcing relationship. Indeed, this is the
▶ *See* **O'Donnell**, *page 20*

Is it time to outsource IT mgmt.?

Maybe
No   some   Yes
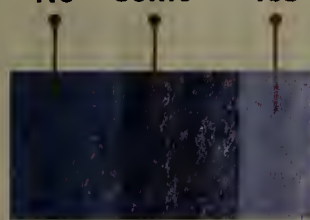
Cast your vote and see comments at
tinyurl.com/3a9vu9k

couple of Wintel servers, jumped into the market. Surrendering control of information services to this early wave of managed service providers proved to be a bad risk on many counts.

Those days, and those guys, are gone. The market in managed services has matured and become increasingly competitive. Technologically and fiscally strong outsourcing providers today can be trusted with your information services.

Strategic outsourcing is not a handoff. It's a partnership. The technology for outsourcing select services — such as server and storage back-ups, e-mail management, security and help desk — has evolved to keep you in control at all times. The ability to customize all aspects of selected services gives you the flexibility to develop coverage that fits your unique situation exactly, and then change the coverage as your situation changes.

New IT service management tools, for example, not only provide enhanced portal functionality for ticket handling, ticket timers and workflow, but also allow customers to apply all of the ITIL v3 best practices to systems they're supporting on their own, essentially delivering state-of-the-art service management efficiencies right out of the box.

It may have taken bad economic news to drive some IT departments to outsource select services as a way to cut costs. But the good news is that outsourcing services also enables IT to escape the revolving door of crisis-to-crisis management. Strategic outsourcing offers the long-term opportunity to gain competitive advantage. ■

Flood is president and CEO of Logicalis in Farmington Hills, Mich., an international provider of integrated information and communications technology (ICT) solutions and services.

primary reason outsourcing has earned such a poor reputation. The problem is not with the outsourcers as much as with customers that lack the planning and execution such situations demand. Ambiguity favors the vendor, not the customer. Be crystal clear about everything and plan for worst-case scenarios.

Automation is more attractive than outsourcing. If a commodity function can be automated, following that path is usually less painful than outsourcing it. You can retain control, execute with confidence, and realize significant labor savings.

Unless your enterprise is very small, do not contract anyone to perform monitoring and data collection (for example CMDB) in a fully remote model. Such architectures will require privileged access to many of your resources and result in a flood of data.

A hybrid model is better, with some type of instrumentation installed on your premises to do the work of polling, collection and hopefully some processing. The best way to implement this is via a self-contained appliance. The remote party can control this appliance and manage reporting remotely.

If your only goal for outsourcing is to save money, you will be disappointed. Almost all who pursue this myopic approach spend more in the end. Out-of-scope work adds up and vendor management costs are usually underestimated.

Outsourcing IT management can be beneficial, but it isn't the cure-all that many suppliers profess and, if you get it wrong, the results can be devastating. Proper planning and preparation will mean the difference between success and failure. ■

O'Donnell is a senior analyst at Forrester Research, where he serves infrastructure and operations professionals. He will be speaking at Forrester's IT Forum, May 26-28, in Las Vegas.

Why Do Anything?

➔ Why work on the strategic initiatives? Can't you get cost savings and innovations by outsourcing that too? Why keep core business operations in house? They can all be done better and cheaper by someone else. Let's outsource the people who write articles about outsourcing. Let's outsource our government. Let's outsource our schools, the fire departments, the libraries, the health care system, our banking, our parenting responsibilities, etc. What do we really have in business or society anymore that we can't simply outsource and make someone else's problem? – ANON

But wait a minute...

➔ Why do companies use virtualization technology? Because hardware dedicated to a single purpose is underutilized. When you can fully utilize a given resource, you'll find that you probably need fewer of them to carry the load than you would partially utilizing many resources. Is every single IT guy at every small to mid-sized company utilized at 100%? Absolutely not. There is a lot of spare capacity that *could* be used to service more than one company's needs. In the process, they could much more quickly develop best practices and do a better job with better information and empirical evidence than you could obtain on your own with in-house staff. It's an idea that has merit. As with anything, it will only work well if it is managed well. – ANON

On the ground floor

➔ I have seen and been a part of many outsourcing situations on both sides and I can say about 90% of the time it's a complete sham. Outsourcing is very successful when the jobs or processes you are outsourcing are very mature, repeatable and measurable. These are commoditized services that are very easy to outsource to save costs, free up resources and so on. Little known fact: technology services are NOT a commodity until you invest to make them one. Unfortunately outsourcing is usually a tool to cut costs without thought, an attempt to buy maturity or simply a way for management not to be accountable. I have seen many businesses get stale because customers are furious they are not getting results, but executives hide behind their SLAs that the business never truly understood. Those SLAs are usually created by or with much input from the vendor providing service so it is rare the SLA is breached. Since the numbers show "success," you become locked in no matter how much actual pain the business is feeling. Failure is swept under the rug until business management gets frustrated enough to make a change. You can outsource responsibility, but not accountability and it will come back to you eventually. — DJC

VA disconnects Sprint's voice, data services

BY CAROLYN DUFFY-MARSAN

THE U.S. Department of Veterans' Affairs will complete a major network transition this fall, migrating from Sprint as its primary service provider to a new architecture that splits telecom traffic across three other carriers: AT&T, Qwest and Verizon.

The migration is significant given the size of VA's network, which links more than 150 hospitals, 780 outpatient clinics and regional offices around the country. The network supports high-bandwidth, high-security applications used by VA's 300,000-plus employees.

The VA's network migration is a sign of the times for federal agencies, which are in the process of transitioning from the expiring FTS2001 telecom contracts to Networx, a 10-year, $20 billion program offering cutting-edge voice, data, video and wireless services.

While the VA is near completion on its network overhaul, many other federal agencies are behind schedule in migrating from FTS2001 to Networx. The issue is attracting the attention of the House Oversight and Government Reform Committee, whose chair said that 62% of the Networx transition effort is incomplete. The committee plans to hold a hearing on Networx migration issues in May.

With demand for capacity growing at a clip of 6% a month, the VA's network is at the heart of the agency's mission of providing healthcare and other benefits to an estimated 23 million U.S. veterans. The network's key application is the VA's electronic medical records system known as VISTA.

The VA chose to do a like-for-like network transition using the Networx Universal contract, which is held by AT&T, Qwest and Verizon. Sprint, the VA's incumbent carrier, was the only bidder that lost Networx Universal in 2007.

The VA ended up with multiple carriers because it split its network services into three categories (see graphic) and bid each one separately under Networx Universal.

The VA has not experienced any network outages related to its Networx transition, says Dave Cheplick, a director within the VA's Office of Information and Technology.

Cheplick says one key to having the migration go so smoothly is having a solid inventory of its network services. "The better your inventory is across the entire enterprise, the better able you are to make determinations of how to scope your level of effort to ensure you are getting the best value in obtaining services from the carriers," he says.

Because its network is so big and complex,

The VA's network service breakdown

- Wide-area network was awarded to AT&T for an estimated $120 million.

- Toll-free and inbound/outbound voice services were awarded to Qwest. This deal was estimated at $60 million in 2008.

- Call-center services were awarded to Verizon in a deal estimated at $21 million.

- Software for managing physical and virtual systems, network and security configuration, and monitoring and troubleshooting; services for support, education, network consulting and account management.

the VA chose to do a like-for-like network transition and then upgrade technology afterwards. Cheplick says other network operators may be able to switch carriers and handle network upgrades and optimization in one step.

"We were not ready to make a decision about full VoIP implementation, therefore we stayed like-for-like in terms of capabilities," Cheplick explains.

The VA says it is reaping the benefits of the lower prices on Networx, which is helping offset the cost of growing network capacity.

"When you break up large telecom packages into smaller services and components, you should be getting a better deal," says Ray Bjorklund, senior vice president of FedSources. "You have to trade that off against what possible impact it's going to create on your oversight and contract management downstream. But it may make more sense economically and probably in contractor performance."

Biggest loser: Sprint

The biggest loser in the VA's transition from FTS2001 to Networx is Sprint. Losing federal business such as the VA's has contributed to Sprint's losses over the last three years.

The VA had Sprint as its sole carrier from the late 1990s until 2007, when the agency began moving to a multi-carrier strategy to improve its network redundancy and reliability. That's when VA awarded AT&T a contract for MPLS-based data services.

By this fall, the agency will quit using Sprint altogether for wireline services.

Cheplick says the VA has taken two years to migrate to the Networx contract because its network is so big.

"It's 10 years worth of inventory," Cheplick says. "If you're doing a physical transition from one carrier to another, there are workload issues. T-1s take 60 days to order, DS-3s take 90 days, and OC-3s can take 120 days or more. Just making sure you've got all of that lined up so the carriers can work on it takes a while."

Cheplick says the VA has migrated 1,300 WAN circuits from Sprint to AT&T or Qwest, with just 200 left to be transitioned. "We expect that to be complete sometime in the July timeframe," he says.

In terms of voice services, the VA has transitioned 200,000 lines from Sprint over to Qwest. "It is our expectation that we will complete transition of our voice services from Sprint over to Qwest in the September/October time frame, and then we will proceed with the remaining disconnect orders that need to be processed through the fall of 2010," Cheplick says.

Sprint says VA will remain "a very substantial customer" for its wireless services, which the agency has not yet migrated to the Networx contract. ■

that left it at a disadvantage in its competition with McAfee," Trussell says, adding, "Our data indicates that the enterprise community is ripe for a viable alternative to token-based systems. This would also serve well in a cloud-based service environment."

DeSouza says about 900 employees from VeriSign are expected to join Symantec's enterprise security team. While PGP and VeriSign are both in the PKI business, VeriSign's focus is on hosted PKI and authentication, deSouza says.

The strategy in the VeriSign acquisition is to further "identity-aware" security, he says. "The certificate becomes a foundation for identity."

The VeriSign certificate services match up well with Symantec's Critical System Protection for hardening client and server installations and Protection Suite for Servers, Symantec is eager to point out. Symantec appears ready to embark on many projects in the future to show how PKI and certificate-based authentication services can be used in novel ways. ■

ports" vs. enabling server-to-server interaction, he said. "It's slow."

So Juniper needs to deliver sooner rather than later on the bold pronouncements it made last week, last fall at customer site New York Stock Exchange and over a year ago at the Stratus launch.

Early signs are promising. One example: Juniper beat Cisco in landing the NYSE account, a demanding environment in which latency cannot be tolerated when billions of stock market trades are executed daily.

Juniper, well known as the No. 2 vendor behind Cisco of routers to service providers, has been gaining steam in enterprise routers and switches as well. In enterprise routers, Juniper is No. 2 to Cisco, albeit a distant second, with 5% share of the $790 million world-

performance while reducing costs, and facilitates more server-to-server — rather than switch-to-switch — interaction. At the heart of this architecture is a reduction in the layers of networking in the data center, from three layers — access, aggregation and core — to two and then eventually to one, and that's where Juniper is headed with its Project Stratus. Juniper says that $1 billion of the $4.8 billion spent on data center switching is for aggregation — the layer Juniper seeks to extract.

"It's clear to the industry that, because of server virtualization, a new network needs to emerge," says Cindy Borovick, a data center analyst at IDC. Juniper's announcement "is a reaffirmation of that, with proof points."

Juniper last week announced products that can deliver a two-tier data center architecture this year: a 48-port 10G Ethernet top-of-rack

and Data Center Bridging (DCB) "capable," and 44% more power efficient than Cisco's Nexus 5000, Juniper says.

CEE and DCB are emerging technologies and standards for making Ethernet a lossless fabric for the data center, capable of supporting storage traffic — such as Fibre Channel — for converged storage and server access.

Juniper also unveiled a 40-port 10G Ethernet line card for its EX 8200 core switch. This will position the 8200 as an end-of-row switch for aggregating multiple 10G links from servers and server switches.

The new router is the MX 80 3D Ethernet edge services router. It incorporates the Trio chipset that's designed to dynamically and simultaneously support more subscribers, services and bandwidth.

The MX 80 3D is designed for virtual machine mobility between data centers interconnected by Ethernet Virtual Private LAN Services (VPLS). VPLS provides a single Layer 2 domain between these data centers.

This will compete with Cisco Overlay Transport Virtualization data center interconnect technology. Juniper also says the new MX 80 3D Ethernet router takes up half the power and space of Cisco's ASR 1004, while providing an eight-fold improvement in performance.

Cisco declined to comment on the Juniper announcement.

But key to flattening the network architecture is Juniper's Virtual Chassis technology. Currently, Virtual Chassis allows as many as 10 of Juniper's fixed configuration EX switches to be connected into a virtual switch that supports hundreds of Gigabit Ethernet ports.

This will alleviate the three-tier architecture requirement for an aggregation layer made up of several modular switches collecting links from switches in the server racks so that fatter and fewer pipes can run into and out of the data center core. Virtual Chassis will be added to the EX 8200 line in the first half of 2011. It is also expected to be available on the EX 4500 in early 2011 and on the MX 80 3D in the second half of 2011.

Coincidentally, the first deliverable from Stratus will be in the first half of 2011. As Virtual Chassis spreads out across more of Juniper's product line, expect to see more tangible Stratus products and deliverables emerge. Stratus will essentially be a scaled-out Virtual Chassis architecture capable of supporting thousands of servers and flattening the EX and MX architecture to look like a single Ethernet routing switch.

But analysts expect Cisco to counter.

"Our checks suggest Cisco is working on its own Virtual Chassis technology to address Juniper's marketing edge," states Oppenheimer & Co. Analyst Ittai Kidron. ■

Data center deluge

Juniper's new switch, router, software and services lineup

- EX 4500: a 48-port 10G Ethernet top-of-rack switch, with support for Virtual Chassis capabilities in 2011. Converged Enhanced Ethernet and Data Center Bridging "capable."

- 40-port 10G Ethernet module for the chassis-based EX 8200 core switch: This will position the 8200 as an end-of-row switch for aggregating multiple 10G links from servers and server switches. Support for Virtual Chassis first half of 2011.

- MX 80 3D: an Ethernet router for interconnecting data centers; ASICs tuned for high-performance support of virtualization, server/storage/network convergence, and lossless Ethernet. Support for Virtual Chassis in second half of 2011.

- Software for managing physical and virtual systems, network and security configuration, and monitoring and troubleshooting; services for support, education, network consulting and account management.

wide market in the fourth quarter of 2009 compared with Cisco's 83%, according to Dell'Oro Group. HP/3Com was third at 3%.

In Ethernet switches, Juniper has steadily been building market share since entering the business in early 2008. Its share climbed from 0.3% in 2008 to 1.2% in 2009, according to Dell'Oro, allowing Juniper to surpass long-time player Enterasys and Blade Network Technologies, while catching up to Extreme Networks and Huawei. Cisco still has a hold on market leadership, with about 70% share.

Juniper seeks to make more headway by addressing what it sees as a need for a new network architecture optimized for virtualized data centers — an architecture that increases

switch, a 40-port 10G Ethernet module for the chassis-based EX 8200 core switch and an Ethernet router for interconnecting data centers with ASICs tuned for high-performance support of virtualization, server/storage/network convergence and lossless Ethernet.

ASICs and Junos software in all of the new products are designed to support FibreChannel-over-Ethernet (FCoE) for storage/network convergence. Junos will have FCoE-specific hooks in it in the second half of this year, Juniper says.

Juniper says the top-of-rack EX 4500 has one-fifth of the latency and 22% lower cost than Cisco's Nexus 5000. The EX 4500 is also Converged Enhanced Ethernet (CEE)
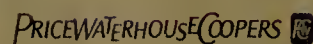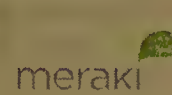
NAC: What went wrong?

After five years, still no easy way for IT managers to achieve network access control

BY JOEL SNYDER

After spending four months in the lab testing the 12 leading network access control products, we've come to this conclusion: Five years of hype, buzzwords, white papers, product launches, standards battles and vendor shakeouts have resulted in very little in the way of clarity. Agreement on what NAC really means and the right approach to NAC remain as elusive today as in 2005, when the first NAC products burst on the scene.

Our head-to-head comparison of specific NAC products from industry heavyweights such as Microsoft, Cisco, HP, Juniper, McAfee, and Symantec, will appear in the June 21 issue of *Network World*. In this report, we analyze the barriers that have impeded the deployment of NAC within enterprise networks.

Network access control, which we're defining as a combination of authentication, end-point security checking and access control, emerged in response to the problem of mobile users plugging infected laptops back into the enterprise network. NAC was intended to solve real problems and answer real questions: who is connecting to my network? Are they healthy? Can I control where they go? Can I shut them off if they misbehave?

Typically in our industry, products tend to coalesce over time towards common approaches and common feature sets. For example, today's Ethernet switches from different vendors are largely substitutable. Swap out an HP ProCurve switch for Enterasys and the switch is probably going to work in your network. But NAC hasn't worked out that way. The products bear very little similarity to each other. With very close inspection, a network manager might be able to find two or three products that can be compared head-to-head. But finding comparable products is difficult, and doing so pre-supposes that the network manager already knows the feature set and capabilities that he wants.

There's no such thing as "best of breed" in NAC, because for the 12 vendors we evaluated, there are nearly 12 different "breeds" of NAC product.

BARRIER NO. 1
Politics gets in the way

A particularly difficult issue is finding a product that will be compatible both politically and technically with the network. Because NAC combines features of security, network management and desktop management, a NAC deployment faces significant organizational challenges on top of any technical challenges.

To accommodate this, NAC vendors often build their products to minimize the need for cross-team cooperation, usually by making significant compromises. However, every NAC vendor makes these compromises in different places, and to different degrees. Symantec's NAC offering is focused on the desktop team, while HP's NAC product can be installed, configured and managed by the network team.

All this adds up to a significant barrier for network managers who want to deploy NAC. Forget the cost of the products — just figuring out which product will do the job that's needed, and whether the product can be made to work in the organization, is significantly more difficult and time consuming with NAC than with switches, firewalls or servers.

BARRIER NO. 2
Too many vendor variations

NAC's three components are authentication, endpoint security and access control, but vendors tend to deliver NAC products based on their strong suits. This means NAC products tend to focus on one of those three components, often ignoring the other two. When McAfee approaches NAC, it does so from the context of their own end-point security management product, ePolicy Orchestrator. But Juniper approaches NAC from the context of its network security components: firewalls and, to some extent, switches.

The broad variation in products is due to disagreement on the best way to reach the final goal. The problem with this lack of consensus is that it causes confusion for those who are interested in adding NAC capabilities to their network. For example, is authentication important or isn't it?

If you ask Forescout, the answer is "no;" its product barely supports user authentication. Is access control important? If you ask Bradford, the answer is "no;" its product is focused on identifying devices and putting them on different virtual LANs (VLAN), not on differentiating users and controlling their access. And if you want to know if endpoint security is important, don't ask HP; its NAC product doesn't even support endpoint security checking out-of-the-box — you have to go to a third-party partner to pick up this capability.

Of course, each of the NAC vendors has shoe-horned in bits and pieces so that they can check-mark all of the significant features they find in NAC RFPs and tenders. But in our testing, it was very clear that many of these features were fundamentally at odds with the core product architecture.

With so little agreement from major NAC vendors, network managers are in a tough spot trying to figure out whether NAC brings them any real value or is worth the headache of procurement and deployment.

BARRIER NO. 3
Interoperability woes

When *Network World* tested NAC products head-to-head in 2007, we had to break our tests up into separate parts. One test looked at two

NAC frameworks (Cisco and Trusted Computing Group) and 30 products that worked in those frameworks. The other test looked at 13 stand-alone NAC solutions. We had predicted that by this time, the frameworks would have unified and all NAC products would support them to one extent or another.

Unfortunately, the products that were resolutely stand-alone in 2007 are just as resolutely stand-alone in 2010. This year, we looked at seven of the 13 stand-alones from 2007, and only one of them (Juniper) has made a significant move towards standards compliance. (Three of the companies have gone out of business, two no longer market their endpoint security products as NAC, and one declined to participate.)

Even old standards, such as IEEE 802.1X, have not achieved full support in many NAC products. While we found some products that enthusiastically take an open standards approach to NAC using 802.1X, others have 802.1X support as an afterthought.

This adds up to a lack of interoperability between NAC solutions and network infrastructure. Each NAC vendor has a preferred set of other security products they work with, and if you try and bring different products into the mix, you may find your NAC deployment can't or won't support these changes. The result is a strange sort of vendor lock-in: your NAC product may restrict you from making changes in the network switching products you use, your authentication infrastructure, and what endpoint security product you install.

With only a few products really taking standards-based approaches to heart, it's clear that NAC has a long way to go before network managers will have a true plug-and-play solution.

BARRIER NO. 4
Deployment difficulties
One perennial struggle for NAC vendors has been the difficulty of deployment. Although many NAC products we tested are designed to allow gradual installation across enterprise networks, getting even a single port protected by NAC can be a lengthy process. More importantly, the installation of NAC can include many significant decision points — and if those decisions are changed down the line, the entire deployment may have to be restarted. Simple questions, such as "how am I going to do authentication?" or "what mechanism will I use for access control?" are difficult to answer confidently without some in-the-trenches experience — yet must be decided before you can even start rolling out NAC.

Our experience is indicative of the problem facing network managers. Only one of the 12 products could be installed and operational within a single day in our small test network. Most took between two and five days to get fully operational across a handful of switches and subnets. When it takes that long to get NAC installed in the test lab, network-wide rollout will be even more time consuming.

Network managers may find day-to-day operation and debugging of their NAC products to be challenging. Most NAC products work by interacting with network devices to change VLANs or apply access control lists to individual ports on switches. Network operations teams will have to learn how to discover and manipulate this dynamic information from their devices. Although switch manufacturers have made progress in simplifying NAC debugging, not everyone has the latest hardware and software throughout their network.

When NAC products are in-line, this represents another operational challenge, as network teams now have a new device to learn how to manage and debug. And the worst case for debugging is in products that accomplish access control by manipulating protocol elements such as ARP tables (Trustwave NAC) or by injecting protocol management messages into the network (Forescout NAC). Since the behaviors these products are exploiting are never supposed to happen in normal operation, there are no easy ways to debug them when they are misbehaving.

BARRIER NO. 5
Hidden scalability issues
One of the bright signs that came out of our testing is the relative lack of scalability and availability issues. In previous NAC testing, we uncovered performance problems caused by funneling too much traffic through a single control point. Early NAC products were often entirely in-line, meaning that you had to buy a new appliance or device of some sort that sat in between devices you were controlling and the rest of the network.

For scalability across a full enterprise network, most network managers agree that enforcement at the edge of the network is required. The products we tested have done away with the requirement for a full in-line deployment and are now able to do their work

Standards wars end, replaced by uneasy truce
Trusted Computing Group leads effort to certify NAC products.

The Trusted Computing Group's Trusted Network Connect is an industry-supported working group developing NAC architecture documents and standards. The first public documents came out of TCG's TNC in 2005 after a year of work, and the group has continued to publish NAC standards and fill out its NAC architecture every year.

One of the main attributes of the TNC architecture for NAC is that it combined authentication and endpoint security posture checking into a single unified protocol. TNC defined the protocol to run over 802.1X (most useful in a one-device-per-switch-port or wireless environment) as well as SSL (useful in more generic environments, such as over VPN tunnels or in routed networks where switch management is undesirable).

When Microsoft released Windows Server 2008, the Microsoft NAP (Network Access Protection) and TNC NAC protocols were linked so that Windows Vista, Windows XP (with service pack 3, which includes the NAC client), and Windows 7 are all interoperable with products that follow the TNC NAC protocols.

This gave TNC significant legitimacy, because it means that every contemporary Windows client is now "TNC compatible" out of the box.

When TNC first started, Cisco refused to participate, insisting instead that work should take place in the IETF. This led to the founding of the IETF Network Endpoint Assessment (NEA) working group. Slowly, NEA has built its own NAC architecture and protocols, and released three RFCs. All the NEA work is being closely linked to the TNC work, so that the RFCs are compatible with the TNC protocol specifications.

Last month, TNC announced a certification program, which will allow participating vendors to receive a stamp of approval verifying that their products implement the TNC protocols correctly, and that their products are interoperable with other certified products.

The work of the TNC is important for two key reasons. First, it represents the main path forward for interoperable NAC products.

The second reason is that these architectures are designed by security and network experts who are more interested in solving problems than getting a product to market quickly. While there are always commercial interests in any modern standards development, network managers can look to TNC and IETF-based products with some confidence that the primary design goal was security.

The standards wars that were so inflammatory five years ago have settled down to truce on all sides, and technically outstanding solutions from the best minds of Cisco, Microsoft and the members of the TNC.

CASE STUDY: Kroll Factual Data

Kroll Factual Data of Loveland, Colorado, is a longtime provider of information services to the mortgage industry. The firm wanted to optimize its server infrastructure to better meet spikes in demand and reduce data center costs. Kroll Factual Data virtualized its data center using Windows Server® 2008 and Hyper-V™ technology, consolidating 650 servers to 22. It further streamlined its infrastructure using Microsoft® System Center data center solutions to monitor and manage its physical and virtual landscape, and Microsoft Visual Studio® development tools to quickly develop applications.

With its new optimized infrastructure, the company can grow faster, scale quickly to meet customer needs and dramatically reduce IT costs. Kroll Factual Data has cut annual hardware expenditures by tens of thousands of dollars, and energy costs by U.S. $442,554 annually.

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at the edge, with a couple of caveats. For example, McAfee's NAC appliance will sit in-line during initial authentication and endpoint security checking phases of the connection, but reconfigures the network to move itself out of the way as quickly as possible. Juniper's NAC offers both in-line and edge enforcement, giving more sophisticated controls when an in-line device (a Juniper firewall) is used than an existing edge switch can provide. Many NAC offerings continue to include a full in-line option, which may be needed in some environments (such as when applying NAC controls to a WAN, VPN or wireless network).

Although we didn't test high availability, we did examine the architecture each vendor offered to ensure continued operation in the face of different types of failure, and found that everyone has a convincing story in this area.

Network managers should be wary of hidden scalability problems, though. Some products we tested have obvious issues when scaling to large networks. Less obvious are constraints such as a dependence on unreliable SNMP traffic or a requirement to poll every user edge switch frequently to detect changes in client status. These designs work great up to a certain point, but can fall apart rapidly as the network scales up or when older switch processors become overloaded with unexpected management traffic.

When we discussed these types of issues with the vendors we were testing, we got the same advice from each: good pre-sales communication is critical to success. To ensure that the NAC solution they choose will scale properly, network managers should make sure they provide as much information as possible during the sales cycle so that prospective vendors can properly size their products.

BARRIER NO. 6
ROI is not balanced with cost

A good network manager makes a business case for any new technology. Here's what it will cost. And here's what it's going to save us. If the savings exceed the cost, it's a good deal. With NAC, network managers are having a hard time making a good business case.

It's not that NAC doesn't have any benefits, but those benefits often fall into the nebulous area of security ROI, one of the most difficult returns to calculate. How much is it worth to not have a little break-in? How much to avoid a big break-in? How likely it is we would have had one? Can this technology promise to avoid it? These are difficult calculations.

The ROI calculations on NAC aren't helped by the costs being charged by many NAC vendors. Some give it to us at a bargain

What's holding NAC back?
Five key challenges and how to overcome them

Products are not easily comparable	Prepare for a long product evaluation, and lots of products to be tested before you shortlist. Be wary of including products before you really understand how they work and whether they will fit into your network technically and your company organizationally.
Lack of agreement among vendors on what is important in NAC	Make a solid business case for NAC before starting product selection process. Divide NAC into three areas of authentication, endpoint security and access controls, and define your requirements for each area.
Standards support among NAC products weak	Decide early whether you require 802.1X and TCG or IETF support in your NAC product. When going with a non-standard proprietary approach, be very careful to test products with all your equipment at all revision levels to ensure compatibility and interoperability.
NAC installation and operation can be difficult	Prepare for a lengthy testing period. Don't commit to a schedule until you're clear on the scope of the work involved. Be sure to account for time to train network operations teams on new debugging and troubleshooting requirements.
Scalability and high availability are usually not a problem	Coordinate and communicate carefully during pre-sales product sizing to be sure you get enough devices to meet your needs. Test any product that polls network devices to evaluate the projected load placed on older switches.

price: Microsoft, for example, includes a full-featured NAC product with Windows Vista, XP and Windows 7.

But even if the software is virtually free, deploying NAC is expensive. It takes time, and time is money. You may have to buy more switches or upgrade switches. You certainly have to understand how your network operates very well, and you've got to be prepared to change many of your internal processes for moves, adds and changes.

What can vendors do?

NAC has certainly not lived up to expectations, but it isn't dead either. Frost and Sullivan predicted that NAC vendors will sell 7,500 appliances and rake in at least $250 million in 2010, with a nice, steady growth rate of about 25% every year. Vendors aren't seeing the revenue or growth that was predicted. But what can vendors do to accelerate NAC deployments in the enterprise? We have three suggestions:

1. To address the political issues, vendors could design products that naturally break apart into three components: network, desktop and security. If the NAC product lets each team deploy their part of the NAC puzzle in the way

that fits best into their network, then the likelihood of success is much greater.

2. When it comes to ROI, some enterprises have seen cost savings with NAC, irrespective of the potential for lowering risk of data loss or intrusion. That's the direction NAC vendors have to go: figuring out how their products can bring value even in the absence of security benefits. We saw this in our testing with some outstanding dashboards and visibility tools. This needs to be a benefit of any NAC deployment to push NAC into the mainstream.

3. The complexity of NAC is the most difficult barrier to overcome. Vendors have pushed features and complexity into their products as they've learned from customer after customer what works and what is needed to make things work. They aren't likely to throw it all out and start over from scratch.

However, if venture capitalists continue to provide funding for start-ups, new products can come out of the woods with a clean architecture based on the lessons learned from everyone else in the industry. If not, NAC just might continue to languish as a great idea that never really takes off. ■

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Cool Tools Road Rules

ROAD TRIP READY

BY KEITH SHAW

2010 SUMMER GADGET GUIDE

Are you hitting the road this summer? Going camping, heading to the beach, flying to Disney? If so, make your trip via the plane, train or automobile a lot more enjoyable with some of these Cool Tools-approved gear and apps.

Cisco FlipSlide HD digital video camera ($280) ➔
The latest Flip video camera features 16GB of storage for your videos, and a slide-up display that lets you share videos of your vacation more easily with others.

⟲ Samsung N150 netbook ($300)
At 2.7 lbs., the N150 netbook is great for quick trips, letting you do practically everything a laptop does, but with less bulk. The N150 includes a 10.1-inch non-glare screen, 3-in-1 memory card reader, seven-hour battery life, three USB ports and a variety of cool colors (Flamingo Pink Caribbean is our favorite).

MORE SIGHTS TO SEE!
More gadgets and summer-related iPhone and iPad apps are available online.
www.tinyurl.com/243qhlv
Shaw can be reached at kshaw@nww.com.

Altec Lansing inMotion Compact speakers and dock ($80)

The latest small speaker system for your iPod, iPhone or other MP3 player includes a small design (extremely portable), with the option of powering via AA batteries if you're not near a power outlet. It comes with a unique case that can protect the speakers from the kids and also doubles as a stand.

NovoThink Surge solar charger for iPhone 3G and 3GS ($70)

If your vacation plans include outdoor venues such as hiking up a mountain or laying on the beach, there probably won't be a lot of power outlets to recharge your phone. Instead, use the power of the sun to recharge. The charger also doubles as a protective case for your phone.

ZipShot tripod ($50)

Taking good photos and videos requires a tripod, but a lot of them are heavy, bulky and take some time to set up and pack up. The ZipShot quickly sets up through bungie-like cords that snap the legs into place, and packing up takes seconds. If you need a quick setup and getaway with your tripod (like if you're being chased by a bear), grab a ZipShot.

Toshiba Camileo S20 ($180)

What fun is going on vacation if you don't have videos and photos of the experience? The Camileo S20 fits in your pocket, includes 4x digital zoom for video and takes 5 megpixel digital still photos.

TomTom XXL550 ($200)

The latest GPS models from TomTom include an EasyMenu, an easier touch-screen menu providing quick access to search tools. Also included are Lifetime Maps and/or Lifetime Traffic Updates ($30), keeping your system more accurate. The company also just announced the Darth Vader voice (about $13), which should keep you and the kids entertained while the Dark Lord of the Sith directs you to the rotary.

Sleek Universal Cell Phone Signal Booster ($130)

Despite the commercials from AT&T and Verizon, you may find yourself driving through areas in the country where cell phone coverage isn't as good as advertised. This in-car device boosts your cell phone and data network signal so you can get that important call or e-mail out.

Coghlan's Flint Striker ($9)

The next time you find yourself in the woods trying to start a fire (or if you're a contestant on "Survivor"), break out this waterproof magnesium fire-starting rod and striker, which can start a fire at any altitude in any weather condition. It does so by generating a stream of sparks that can light any combustible material. Also makes a worthy sparkler-alternative on the Fourth of July.

NETWORKWORLD

■ Editorial Index

■ Advertiser Index

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*Indicates Regional Demographic

BPA WORLDWIDE™

Opinion in three courses

APPETIZER: I was having lunch with my friend Tony today and lamented that my DSL connection has been acting flakey. I've been experiencing occasional poor throughput along with lots of failed DNS lookups; I try to load a site in a Web browser and it fails but try once or twice more and, lo and behold, there's the site.

Tony responded that he's also been having serious slowdowns with his cable Internet service and its not just when the kids in his neighborhood get back from school. He has a theory: AT&T and Comcast are just trying to soften us up and reduce our expectation of service.

Then, so his theory goes, when they roll out something "better" and, it goes without saying that will be a something that's more expensive, we'll respond like Pavlov's dogs and pay without thinking twice. I'd hate to think he might be right.

Main course: My editor just sent me a brilliant item from The Onion (warning: includes foul language) that skewers the social networking service Foursquare in particular and social networking in general.

In case you've missed the tsunami of excitement over Foursquare, it mashes up geolocation with social networking and smartphones to provide a service that, should you be enormously gregarious and feel a pressing need to know where your friends and acquaintances are all the time, will be literally right up your street.

Foursquare wraps this up with "badges" awarded for incredibly trivial achievements along with "mayorships" for repeated attendance of one or more locations (I find this particularly silly). The service also reveals your stats: Number of nights out, number of places you've checked in from, and other, even less interesting things.

In short, Foursquare is not my kind of thing. I don't give rat's #$$ where people might be unless they owe me money. That said, obviously many people don't share my viewpoint as Foursquare has signed up 1 million users in slightly more than one year.

Dessert: Despite my sarcasm over Foursquare and many other social networking services and games such as Farmville and Mafia Wars, I believe all of this social networking stuff actually matters.

You can divide the social networking world into four major groups: E-mail and listservs (which, together, are the original social media); forums, LinkedIn, Facebook, blogs with comments, and content-oriented services (such as YouTube and Slideshare as well as Foursquare); and, finally, the microblogs such as Twitter, Identi.ca and Plurk. Each group fulfills a market need, which is evident from the success stories in each group; you don't gain a million users without there being something compelling about what you offer.

For those of us in the commercial world, ignoring social networking would be like 15th century monks ignoring Gutenberg except disenfranchising the monks took a generation; those who ignore social networking will be disenfranchised in, at most, a year or two.

Social networking in the broader public sphere fulfills a communication need that we, as yet, barely understand and without overstating the case and risking the wrath of The Onion, social networking, even in the guise of Foursquare, will transform the how, why and what we talk about, focus on and care about. ■

Gibbs risks the wrath of The Onion in Ventura, Calif. Your tears to backspin@gibbs.com.

A whole lot of YouTube and all-wireless

LAST TIME in this space we attempted to make sense of the scale of a zettabyte, which is 1 trillion gigabytes, or a 1 followed by 21 zeroes. The attempt was largely futile.

Today we'll tackle some more manageable yet equally interesting numbers from the world of technology, starting with YouTube's contention last week that it is now serving up some 2 billion video views every 24 hours.

According to a blog post by YouTube parent company Google, 2 billion views "represents nearly double the prime-time audience of all three major U.S. television networks combined."

Impressive, yet that's not what I found most remarkable about the number. No, what made the 2 billion a day tally so notable is the fact that it was announced publicly in conjunction with YouTube commemorating its fifth year of operations.

From zero to 2 billion views in only five years: Now that's Internet speed.

Yet YouTube co-founder Chad Hurley sees the achievement as a glass almost empty, telling BBC News: "I feel we have much further to go. Two billion video streams is a large number but on average people are only spending 15 minutes a day on the site compared to five hours a day watching TV."

Of course, television had a head start, what it having been around since the 1930s and all.

They grow up so fast, though. ... It's a good thing we all have video cameras.

The disappearing landline

It's by no means news that more and more people are choosing to ditch their landline telephones in favor of going all-wireless, all the time. However, it is worth noting the rapidity with which this transformation is taking place, witness a few figures from a semiannual survey conducted by the Centers for Disease Control and Prevention.

One in four U.S. households has made the leap to wireless-only, according to the report. While that number has been rising about 4.3% annually, it's worth noting that when the data was first collected in 2003 only about 3% of households were without landlines.

About 26% of children now live in wireless-only homes and their numbers are rising even faster than the adult population.

As might be expected, younger adults are more likely to go all-wireless — about half of those aged 25 to 29 have done so, while only 5% of those 65 and older have joined them.

As for the number of households without any phone service at all, that continues to hold steady at 2%.

One last thing: That "one in four now wireless-only" statistic is effectively closer to 40% if you consider that another 15% of households have both landline and wireless telephones but conduct all or almost all of their calls on the latter. In other words, their landline phones are largely decorative.

A hint to that 15%: If you find yourself dusting the handset of your landline telephone, it is probably time to cut the cord. ■

Have a time-flies tale to share? The address is buzz@nww.com.

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